# The Canadian Entomologist

VOL. LV. ORILLIA, AUGUST, 1923. No. 8.

## TRAP-LANTERN RECORD AT ITHACA, NEW YORK (LEPIDOPTERA)

BY W. T. M. FORBES,
Cornell University, Ithaca, N. Y.

(Continued from page 158.)

3507 *Zanclognatha*, group *jacchusalis*. 420; one brood, with climax in July. (Chart 5, 1922.)

3519 *Chytolita morbidalis* Guenee. 148; one brood in June. This species and the June-flying Z. *pedipilalis* did better than most of the deltoids in 1919. (Chart 5, 1919 and 1922.)

3523 *Renia factiosalis* Walker. 28; one brood with climax in early August. (Chart 5, 1922.)

3553 *Palthis angulalis* Hubner. 44; one principal flight in latter part of July and August, and apparently an early brood in June. The complete break in captures from August 8 to 17 is curious, but doubtless accidental. (Chart 5, 1922.)

3554 *Palthis asopialis* Guenee. 16; principal brood in August. A single specimen in June suggests an early brood. (Chart 5, 1922.)

3561 *Bomolocha baltimoralis* Guenee. 17; one brood in August. (Chart 5, 1922.)

3565 *Bomolocha deceptalis* Walker. 22; flight highly irregular with a suggestion of two broods, in June and August. (Chart 5, 1922.)

3578 *Plathypena scabra* Fabricius. 1919: 45; principal brood in October and November (a September flight may have been missed); stragglers in mid-summer. 1922: 35; heavy flight in August, followed by a lighter one in the fall. The species was flying actively when the trap was discontinued, but was less common than usual; the August flight may have been of specimens that normally would wait till fall. (Chart 5, 1919 and 1922.)

3595 *Datana ministra* Drury. 87; (Chart 5, 1919 and 1922.)

3596 *Datana angusi* Grote and Robinson. 40; (Chart 5, 1919 and 1922.)

3604 *Datana integerrima* Grote and Robinson. 107; (Chart 5, 1919 and 1922.)

3607 *Datana contracta* Walker. 107; (Chart 5, 1919 and 1922.)

Each of the common Datanas showed the same curves both in 1919 and 1922; in 1919 the principal flight was in June with at most a few stragglers in July, while in 1922 each had a well marked flight in June, but a much heavier one in July, after a distinct break. There was hardly time for a second brood to feed up, so the most plausible theory is that the July emergences were of pupae that under normal conditions would have gone over several years. In any case the curves are significant. *D. integerrima* and *contracta* were not counted separately; in fact I am not very confident of determining even fresh material. A few *drexelii* may also have been counted with *ministra*. Like the others its principal 1922 flight was in July; but it failed in 1919.

3620 *Nadata gibbosa* Abbot and Smith. 17. This species seems to be behaving exactly like the Datanas. (Chart 6, 1922.)

3621 *Nerice bidentata* Walker. 1919: 10; one brood in June and a straggler in August. 1922: 7; a well marked second brood in August. (Chart 6, 1919.)

3622 *Symmerista albifrons* Abbot and Smith. 236; one brood with climax June 16. This species was extraordinarily abundant in 1919 and then had disappeared completely in 1922. A daily chart is added and will give a good idea of the flight curves of the more abundant species before smoothing. Both the tendency to appear in cycles (climaxes on June 7, 12, 16, 25, 30) and the occasional enormous flights (as on June 20) when the weather is exactly right, are characteristic of the records as a whole. (Chart 6, 1919.)

3643 *Heterocampa guttivitta* Walker. 42; one brood, with climax in early June, a little earlier in 1922 than 1919. (Chart 6, 1919 and 1922.)

3705 *Hemerocampa leucostigma* Abbot and Smith. 49; one brood with climax in August. (Chart 6, 1919 and 1922.)

3756 *Eudeilinea herminiata* Guenee. 39; three flights, with climax in June, late July, and August. Presumably the last two represent only a single brood. (Chart 6, 1919 and 1922.)

3757 *Oreta rosea* Walker (and *irrorata* Packard). 24; two broods, June and early August. Specimens of *irrorata* were taken at the dates marked *i*. (Chart 6, 1922.)

3775 *Racheospila rubrolinearia* Packard. 5; two broods, May and July. (No chart.)

3783 *Nemoria mimosaria* Guenee. 22; one brood in June, and apparently a partial second in July. (Chart 6, 1919.)

3800 *Synchlora aerata* Fabricius. 26; two broods; June and August. (Chart 6, 1922.)

3818 *Chlorochlamys chloroleucaria* Guenee. 134; two broods, with climax in early June and near beginning of August. (Chart 6, 1919 and 1922.)

3857 *Acidalia enucleata* Guenee. 155; one brood in July, with a few stragglers. Far more abundant in 1922 than 1919, as in other midsummer species (140 to 15) (Chart 6, 1919 and 1922).

3901 *Acidalia inductata* Guenee. 26; apparently two broods, early June and August. (Chart 6, 1919 and 1922.)

3912 *Haematopis grataria* Fabricius. 1919: 14; one well marked brood in August and early September, and two specimens in early June, indicating another brood. 1922: 26; principal flights in July and middle of August, with no specimens in June, but a straggler in May, and the August flight lasting heavily into September. There is no resemblance between the curves for the two years, and the species must be exceptionally sensitive to the weather. (Chart 6, 1919 and 1922.)

3914 *Pleuroprucha insulsaria* Guenee. 50; three flights with climax July 8, August 14, and in October. (Chart 7, 1919 and 1922.)

3962 *Dyspteris abortivaria* Herrich-Schaffer. 21; two broods with climax about June 12 and August 8. (Chart 7, 1922.)

3977 *Lygris diversilineata* Hubner. 123; one brood with climax near end of July. (Chart 7, 1919 and 1922.)

4037 *Xanthorhoe lacustrata* Guenee. 1919: 11; one brood in June and stragglers in August. 1922: 22; two broods, May and August. Another

species that shows an extra August brood in 1922. (Chart 7, 1922.)

4054 *Orthonama obstipata* Fabricius (*Percnoptilota fluviata*). 61; principal flight in August; another brood in October, reappearing in May. (Chart 7, 1922.)

4072 *Euphyia intermediata* Guenee. (*Mesoleuca lacustrata*). 15; two broods in June and August (Chart 7, 1922).

4074 *Euphyia centrostrigaria* Wollaston. (*Hydriomena latirupta*). 23; flight irregular. The conditions are probably the same as in the closely related *O. obstipata.* (Chart 7, 1922.)

4122 *Eudule mendica* Walker. 13; one brood in the early part of July (Chart 7, 1922.)

4280 *Horisme intestinata* Guenee. 19; two broods, in May and June, and August. (Chart 7, 1922.)

4293 *Bapta vestaliata* Guenee. 18; one brood in early June, and some stragglers. (Chart 7, 1919.)

4303 *Physostegania pustularia* Guenee. 1919: 75; one very large flight on June 27 and a second straggling flight centering about August 2. 1922: 158; first flight heavy, and lasting well through July, second indicated by a few specimens in August. The graphs would suggest a single principal brood, very sensitive to weather conditions, and a small second brood. (Chart 7, 1919 and 1922.)

4338 *Macaria minorata* Packard. 23; three flights in June, late July, and August. Not taken in 1919. The Macaria group appeared very irregularly. There would appear to be two broods, but flight dates indicate nothing really clearly. (Chart 7, 1922.)

4339 *Macaria bisignata* Guenee. 1919: 7; one flight, reaching its climax at the beginning of July. 1922: 14; flight irregular, lasting well through August (Chart 7, 1922).

4345 *Macaria granitata* Guenee. 1919: 20; one well marked flight with climax June 20, and a second straggling one in August. 1922: 20; two broods centering about July 1 and August 19, and two specimens in the middle of May, possibly indicating another generation. (Chart 7, 1919 and 1922.)

4465 *Caripeta divisata* Walker. 58; one brood in July. In 1922 ten specimens of a striking aberration were taken, plotted on the graph by the letters A. (Chart 7, 1922.)

4486 *Nepytia canosaria* Walker. 67; one brood in September. The principal flight of this species falls in the period when the trap was not running in 1919. (Chart 7, 1922.)

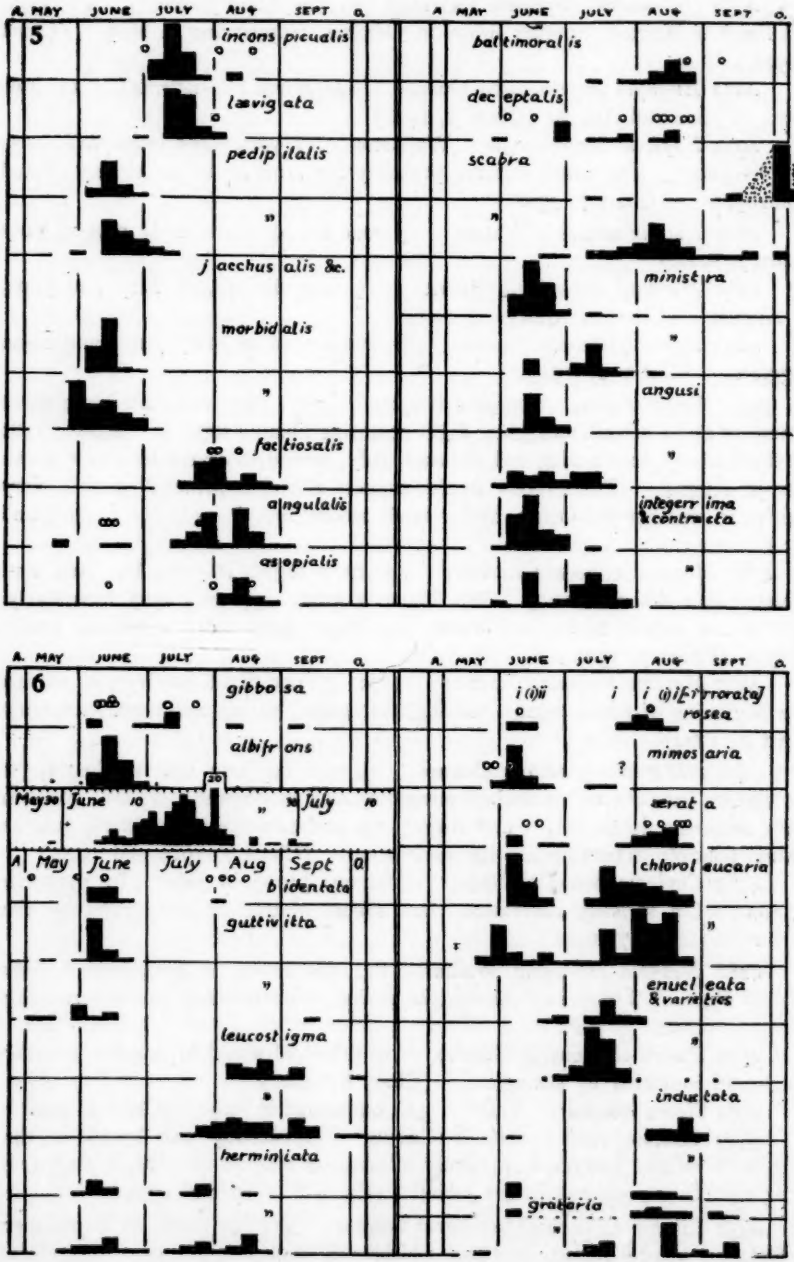
4570 *Cleora pampinaria* Guenee. 11; principal brood in August, another early brood indicated by stragglers. (Chart 8, 1922.)

4584 *Cleora ephyraria* Walker. 50; one brood in July. (Chart 8, 1922.)

4599 *Melanolophia canadaria* Guenee. Apparently one brood in the spring, with an odd specimen appearing in 1919 on August 29. More than one species may be represented in the series. (Chart 8, 1919 and 1922.)

4654 *Ellopia* (*Therina*) *fiscellaria* Guenee. 30; one brood in September and October, largely missed in 1919. (Chart 8, 1922.)

4659 *Campaea perlata* Guenee. 29; two broods in June and August.




TRAP-LANTERN RECORDS.

(Chart 8, 1922.) Only a single specimen was taken in 1919, belonging to the first brood.

4661 *Eugonobapta nivosaria* Guenee. 48; one brood before the middle of July and a few stragglers. (Chart 8, 1919 and 1922.)

4664 *Ennomos subsignarius* Hubner. 90; one flight in July. The few specimens taken in 1919 flew later than in 1922. (Chart 8, 1919 and 1922.)

4666 *Xanthotype crocataria* Fabricius. Two broods, in June and August. As frequently, the second brood was relatively much heavier in 1922. (Chart 8, 1919 and 1922.)

4678 *Hyperetis amicaria* Herrich-Schaffer. 33; one brood in June. (Chart 8, 1919.)

4680 *Nematocampa limbata* Auct. (*filamentaria*). 200; one strong brood in late June and the first half of July, and a few stragglers in August. Exceptionally the weak second brood is no more developed in 1922 than in 1919. (Chart 8, 1919 and 1922.)

4685 *Gonodontis hypochraria* Herrich-Schaffer. 58; one brood in early part of June; a little later in 1919. (Chart 8, 1919 and 1922.)

4744 *Pero honestarius* Walker. 35; one brood with climax at end of May, and a weak second in August (four specimens in the two years together) (Chart 8, 1922).

4752 *Pero marmoratus* Grossbeck. 22; presumably two broods, one in June, and the other centering about August 1. Only the early brood was well marked in 1919, and only the late one appeared in 1922. The life history is obviously different from *P. honestarius*. (Chart 8, 1922).

4762 *Tetracis crocallata* Guenee. 81; one brood in June. (Chart 8, 1922.)

4769 *Sabulodes lorata* Grote. One strong brood in June, and stragglers in midsummer. I suspect the 21 specimens recorded for July 16 have been mislabelled in some way. The four taken in September, 1922, are correct. (Chart 9, 1919, 1922.)

4777 *Sabulodes transversata* Drury. 447; one heavy brood in midsummer. In 1922 this was by far the commonest of geometers, and by a little the most abundant moth at the trap, 395 specimens being taken and counted. (Charts 9, 1919 and 1922.)

4780 *Abbotana clemataria* Abbot and Smith. 68; one brood in May, lasting over into the first part of June. (Chart 9, 1919 and 1922.)

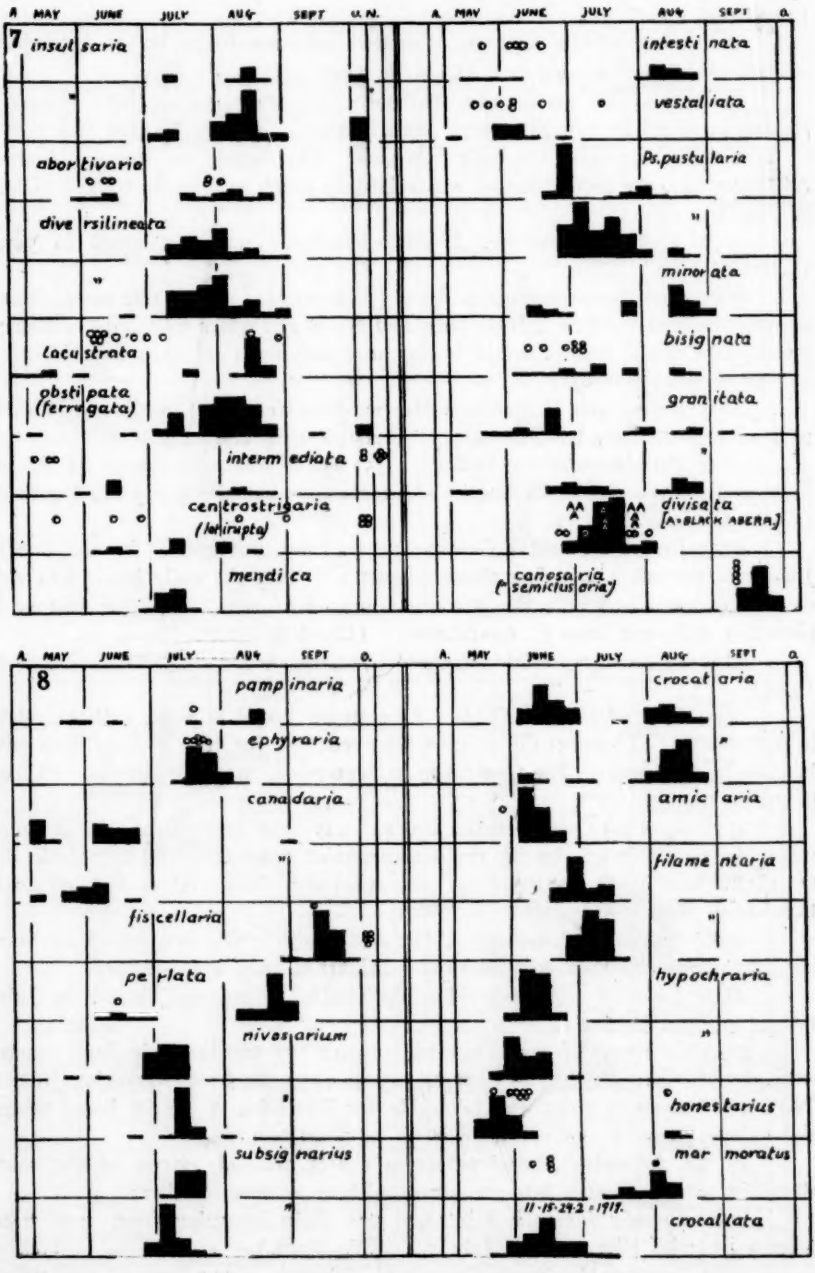
4842 *Lithacodes fasciola* Herrich-Schaffer. 29; one brood in July. (Chart 9, 1922.)

4843 *Packardia elegans* Packard. 1919: 7; one brood in June, apparently cut off short by the dry season. 1922: 17; one brood centering July 2. The moist season of 1922 was favorable for Eucleidae, 7 species being taken, and 51 specimens, as against 12 in 1919. (Chart 9, 1922.)

In the following Microlepidoptera charts are only given of the most abundant species, though data are presented here on several others.

4921 *Desmia funeralis* Hubner. 21; flight irregular from June 7 to August 13, with climax about July 15. (No chart.)

4960 *Pantographa limata* Grote and Robinson. 24; June 18 to August 4, with climax about July 14. (Chart 9, 1922.)




TRAP-LANTERN RECORDS.

5004 *Evergestis straminalis* Hubner. 206; two broods, with climax about June 12 and August 20. (Chart 9, two years combined.)

5005 *Crocidophera serratissimalis* Zeller. 12; June 17 to July 25, a little earlier in 1919. (No chart.)

5020 *Loxostege marculenta* Grote and Robinson. 42; one principal brood, with climax about June 29, and stragglers from May 17 to August 19, the last perhaps an attempt at a second brood. (Chart 9, 1919.)

—— *Bocotarcha demantrialis* Dru. 5; July 24 to August 14.

5088 *Phlyctaenia ferrugalis* Hubner. 56; a heavy brood in October and November, and a scattering summer brood, flying mostly in July and the first of August. The secondary maximum in the end of August appeared both years. and may represent another partial (second) brood. (Chart 9, combined.)

5099 *Phlyctaenia terrealis* Treitschke. 128; two broods, June and August. (Chart 9, combined.)

5102 *Phlyctaenia tertialis* Guenee. 96; first brood in latter half of June, continuing in smaller numbers well through July; second brood in August. (Chart 9, combined.)

5111 *Pyrausta pertextalis* Lederer. 90; two broods, in June and August (Chart 9, combined). In the case of *pertextalis* and *fissalis* a considerable number of specimens have been omitted as doubtful, but still the difference in flight period of the two species is well-marked.

5112 *Pyrausta fissalis* Grote. 160; one brood, with climax rather before the middle of July. The peak at the end of June, 1919 is almost entirely caused by 24 specimens taken June 27. (Chart 9, 1919 and 1922.)

5113 *Pyrausta aeglealis* Walker. 74; one brood in July, perhaps a few days later than *P. fissalis* on the average. The single supposed specimen taken in May may be different, it is very small. (Chart 9, 1922).

5239 *Scoparia cinereomedia* Dyar. 15; one brood with climax before middle of July.

5273 *Galasa nigrinodis* Zeller. 41; one brood, at end of June in 1919, with climax about July 10 in 1922, when the species was exceptionally common. This species is another that has seemed to take advantage of the moist July of 1922 to multiply far beyond the normal for Ithaca. (Chart 9, 1922.)

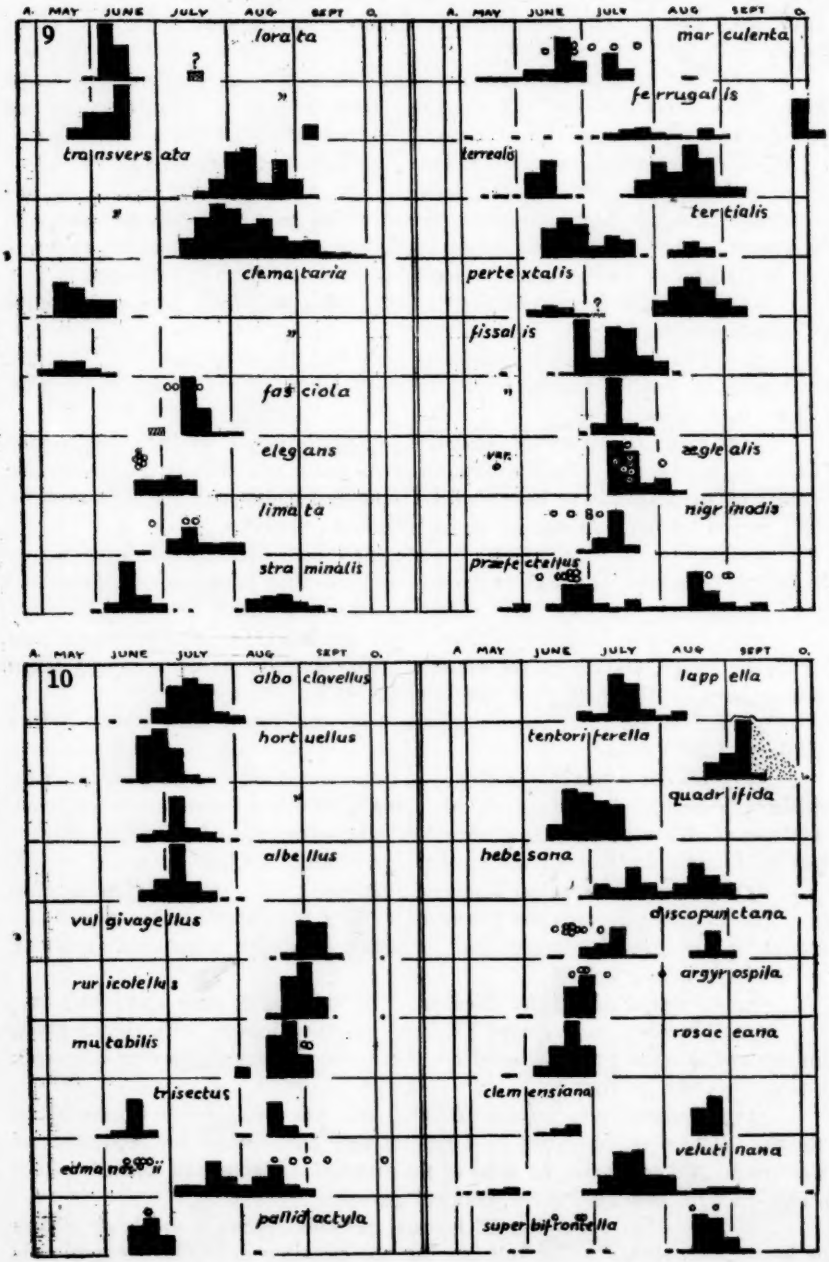
5338 *Crambus pascuellus* Linnaeus (*floridus*). 8; one brood, June 12 to 29. The Crambus records are given more fully than in the other genera, on account of the general interest, and for comparison with those published long ago in Felt's monograph.

5341 *Crambus girardellus* Clemens. 12; one flight, June 19 to July 22.

5344 *Crambus praefectellus* Zincken. 58; two broods, with climax about June 20 and August 15. As usual the second brood was proportionately weak in 1919. (Chart 9, 1922.)

5353 *Crambus alboclavellus* Zeller. 82; one brood with climax about July 10. (Chart 10, combined.) I am not very confident of my separation of *alboclavellus* and *agitatellus*, as some of the material is a good deal rubbed. Both species, though, obviously have identical curves.

5355 *Crambus agitatellus* Clemens. 34; this species also plainly shows one brood with climax about July 10, but the certainly determinable specimens appear to scatter along rather more.




TRAP-LANTERN RECORDS.

5358 *Crambus laqueatellus* Clemens. 12; one brood, with climax about June 13.

5361 *Crambus hortuellus* Hubner. 182; the difference of curve in the two seasons is striking. (Chart 10, 1919 and 1922.) Climax in 1919 about June 25, in 1922 about July 5.

5362 *Crambus albellus* Clemens. 63; here again the 1919 flight centers about June 27, the 1922 flight, which was heavier, about July 6. (Chart 10, 1922 only.)

5366 *Crambus elegans* Clemens. 12; one brood, centering at the end of July.

5367 *Crambus polingi* Kearfott. 4; July 12 to 16. First record for the eastern states. These two species were taken only in 1922.

5368 *Crambus vulgivagellus* Clemens. 192; one brood, with climax at beginning of September. (Chart 10, combined.)

5371 *Crambus ruricolellus* Zeller. 347; one brood with climax at end of August. (Chart 10, combined.)

5384 *Crambus mutabilis* Clemens. 38; one brood in latter half of August. Common in 1922, scarce in 1919. (Chart 10, 1922.)

5392 *Crambus trisectus* Walker. 32; two broods, in June and August. This species also was scarce in 1919. (Chart 10, 1922.)

5367-5399 *Crambus* group *luteolellus,* 125; two broods, June 16 to September 1. I am entirely unable to separate these three supposed species, which intergrade completely superficially (*luteolellus* is supposed to have distinct genitalia). Typical specimens of each taken alone give the same seasonal curves.

5490 *Tetralopha asperatella* Clemens. 26; one brood from June 8 to 27, in 1919; one brood from July 1 to 23 in 1922, with stragglers May 31 and June 13. This is another species that proved exceptionally sensitive to the weather conditions.

5726 *Vitula edmandsii* Packard. 1919: 10; two broods, the principal in June, the second August 15 to September 5, with a straggler October 9. 1922: 42; one flight, with two maxima about July 18 and August 15. (Chart 10, 1922.)

5835 *Peoria approximella* Walker. 18; one brood, June 15 to July 15.

5881 *Platyptilia pallidactyla* Haworth. 46, all but one taken in 1919; one principal brood in latter part of June, and a straggler August 8. (Chart 10, 1919.)

6021 *Metzneria lapella* Linnaeus. 66; one brood in July. (Chart 10, combined.)

6041 *Aristotelia roseosuffusella* Clemens. 22; irregular, June 25 to August 23.

6424 *Cryptolechia tentoriferella* Clemens. 134; one brood with climax in early September. The chart is mainly based on 1919, and the area when the trap was not running is indicated by a dotted area. (Chart 10, combined.)

6798 *Exartema permundanum* Clemens. 14; one brood, July 3 to 28.

6800 *Exartema concinnanum* Clemens. 11; one brood, June 28—July 27.

6807 *Exartema inornatanum* Clemens. 14; July 8 to August 23.

6807.2 *Exartema quadrifidum* Zeller. 50; one brood with climax at end of June. (Chart 10, combined.)

6810 *Exartema merrickanum* Kearfott. 21; one brood; June 20 to July 16.

6827 *Argyroploce hebesana* Walker. 48; two flights, with maxima about July 18 and August 15. The two maxima were plainly shown both years. (Chart 10, combined.)

7281 *Coelostathma discopunctanum* Clemens. 1919: 8; one brood in the latter part of June. 1922: 28; two broods, in early July and late August. (This species again shows the extra brood in 1922.) (Chart 19, 1922.)

7316 *Sparganothis sulfureana* Clemens. 28; two broods, the first in June in 1919, represented by two specimens in early July in 1922; the second in the latter half of August, running over into September in 1919.

7345 *Cacoecia obsoletana* Walker. 29; apparently one brood, flying mostly in July in 1919, in August in 1922.

7353 *Cacoecia argyrospila* Walker. 25; one brood at end of June, and a few stragglers. (Chart 10, 1922.)

7356 *Cacoecia fractivittana* Clemens. 9; one brood, with climax June 12.

7361 *Cacoecia rosaceana* Harris. 35; one brood in June. (Chart 10, combined.)

7364 *Tortrix quercifoliana* Fitch. 15; one flight with climax July 3, and a straggler August 2.

7367 *Tortrix clemensiana* Fernald. 31; two broods in June and August. (Chart 10, 1922.)

7390 *Eulia velutinana* Walker. 103; one heavy brood in July, smaller ones in May and beyond middle of August, and a straggler October 22, 1919. The three main broods are shown both years in about the same proportions. (Chart 10, combined.)

7556 *Carposina fernaldana* Busck. 22; one flight; July 21 to August 23.

8054 *Gracilaria superbifrontella* Clemens. 60; one principal brood in August and stragglers. The trap was not running at the season to catch the winter brood, save for a few May survivals. (Chart 10, 1922.)

8234 *Xylesthia pruniramiella* Clemens. 17; one principal flight from June 30 to July 25, and single specimens August 14 and 23.

---

## ZARRHIPIS — A CORRECTION

The transposition of two lines in the May number of this journal renders the description of *Zarrhipis alamedae* incomplete. Delete the first two lines on p. 110, or transfer them to the top of p. 111. The corrected description is as follows:

### **Z. alamedae** new species

Rufotestaceous; antennae except at base, and seventh and eighth abdominal segments black. Last joint of maxillary palpi piceous, elongate triangular, twice as long as wide, the apical edge shorter than the inner. Prothorax about four-sevenths as long as wide, sides moderately margined. Elytra about four and one-half times as long as the thorax, more strongly scabrous than in any of the preceding species. Length (to elytral apex) 9.5 to 12 mm.

# STUDIES IN CANADIAN DIPTERA

## I. Revision Of The Asilid Genus Cyrtopogon And Allied Genera.

BY C. HOWARD CURRAN,

Ottawa, Ont.

(Continued from page 174.)

### Cyrtopogon willistoni Curran

Allied to *praepes* Williston but the first joint of the front tarsus is not silvery white pilose above.

Length, 11 to 16 mm. *Male.* Face strongly gibbose, convex-receding from a little below the antennae; moderately whitish-yellow pollinose; middle of face with tawny to yellow fine pile, bordered laterally with one or two rows of strong black hairs, all the hairs just above the oral opening stout and black. Front shining black in the middle, with a longitudinal groove, the sides yellow pollinose, the pile wholly black. Occiput black; black pilose, the immediate orbits wholly with a row of black hairs, the lower half with fine whitish yellow pile. Antennae wholly black, the basal segments with long black hairs; third joint longer than the basal two combined, coarctate basally, but wholly rather slender, its greatest width about the apical fourth or fifth; style one-fourth the length of the third joint, with a short, terminal spine-like process. The length of the antennae is about equal to the length of the face.

Thorax shining black, the 5 shaped brownish-yellow pollinose marking seldom complete, as the dash and lower portion is usually missing (usually present in large specimens, but not in the type); a slender or rather narrow median line on the anterior half of the same color and the posterior portion, when viewed from in front, with similar pollen. Pollen on the pleura similar in color to that on the dorsum; the scutellum with a richer colored pollen in certain lights, but generally appearing shining black. Pile moderately abundant, rather long, black; on the pleura chiefly yellowish, but almost all black on the meso- and sternopleura. Scutellum convex.

Legs black; hind tibiae sometimes quite reddish except the broad apex and very narrow base, at other times only slightly lighter in color on the basal two-thirds. Femora with rather abundant, long pale yellow pile, but behind, more or less, and apically, especially above, with black pile. Tibiae black pilose, the hind ones and sometimes the anterior four also, with yellow hairs in front. Anterior tibiae anteriorly and the hind ones on the apical fourth interiorly, golden tawny pubescent. Anterior tarsi with a long, silvery white crest on the last four joints, the hair parted anteriorly near the base, but not usually distinctly parted on the second joint; first joint black haired, rarely with just a few whitish hairs above before the apex; the last joint of the fore tarsus is longer than either the third or fourth, their ventral cushions tawny. Middle tarsi wholly black haired, the last two joints with anterior and posterior tufts of rather long hairs, the second and third with distinctly shorter tufts anteriorly, but the second may often be without the conspicuous tuft, the third joint usually has a small tuft behind; the fifth joint is nearly as long as the first. Hind tarsi simple; black pilose.

Wings cinereous or luteous hyaline. Squamae brown or brownish, with broad yellow border and sparse whitish fringe. Halteres yellow, the stem more

or less infuscated.

Abdomen shining black, without pollinose spots or bands. Pile black; on the sides of the first two segments and the posterior angles of the two or three following, with yellow pile; this gives the appearance of tufts laterally. Sometimes the first three segments are wholly yellow pilose on the sides.

*Female.* Mystax rarely as in the male, usually much more blackish as the strong black hairs are scattered throughout the yellow ones; front more shining, beard paler. Thorax with the pollen yellowish on the middle of the dorsum, greyish laterally, the median stripe broader, entire, the 5 complete, usually wholly closed so that is resembles a 6; posterior portion of the thorax with greyish white pollen. Legs wholly simple; similar in colour. First to fifth abdominal segments with a roundedly triangular pollinose spot on the posterior angles, those on the fifth segment very small; the light coloured pile is usually less bright yellow.

Over one hundred specimens from British Columbia and Banff, Alta.

### **Cyrtopogon leptotarsus** new species

Last joint of fore tarsus as long as the preceding three together, and extremely flat.

Length, 12 mm. *Male.* Face shining black; strongly gibbose, the swelling reaching to the base of the antennae and strongest above, sides densely greyish. Mystax strong, long, black, bordered on either side with fine white hair. Front opaque black, with a small shining area before the ocelli; pile as long as the first two antennal joints, black. Occiput wholly black pilose along the eyes, elsewhere with fine white pile. Antennae black, black haired; (third joint missing).

Thorax shining black; pleura whitish pollinose: (the mesonotum has been wet, and it is not possible to follow the color of the pollen, which is less abundant than usual). Hair of the dorsum all rather short and fine; humeri and postalar calli with fine white hair; pleura fine white pilose; just a few black hairs on the mesopleura and epipleura. Scutellum a little convex, with a slight dull yellowish bloom; at the base with two impressions which are not deep in the middle; clothed with not abundant, not wooly white hair, and lacking bristles.

Legs: femora black, just the tips reddish yellow; tibiae and tarsi all dirty yellowish, the apical half of the last joint of the front tarsi black. Pile of femora, long, white, fine, becoming black and stouter on apical fourth; tibiae with black hair and bristles, the hair long and moderately abundant, especially on the hind pair; tarsi with black hair and bristles, the hind ones with coarse yellow foot pads; front tarsi with fine pale hair beneath and on the under edges; above, anteriorly with a row of long black bristles on the first four joints and a row of very much shorter bristles behind, some of which are yellow basally. The front tibiae bear two remarkably long apical bristles on the front side, which reach to the apex of the second tarsal joint, and several other much shorter ones. All the bristles except those on the middle and hind tarsi are slender. Front tibiae a little curved; hind ones gradually increasing in thickness. Last joint of front tarsus equal in length to the three preceding, and remarkably flat, curved upward about the middle and slightly convex above beyond this point.

Wings glassy hyaline.

Abdomen shining black; short black pilose, the side margins with longer white pile, which is very conspicuous on the first two segments, and shorter white pile extends inwards before the sutures, but does not form entire bands. All the segments, including the first one, have complete posterior greyish pollinose band. Genitalia yellowish pilose, but some long black or brown hairs above.

*Female*. Length 15 mm. Mystax less dense, the pale hairs on the sides more yellow. Third antennal joint a little longer than the basal two together, rather broad, its base only a little narrowed; style stout, tapering, its apical third slender, acute.

Apparently there is a whitish pollinose stripe on either side of the broad, shining middle line. Pile on the dorsum shorter, longer on the pleura and no black hairs on the epipleura.

Legs similar but not specialized, the two long bristles are present on the front tibiae but reach only to the apex of the front basitarsus.

The pile on the whole insect is more yellow than in the ♂.

*Holotype*.— ♂, Norman, Ontario, July 19, 1908, (J. B. Wallis), No. 567 in the Canadian National Collection.

*Allotype*— ♀, Sudbury, Ont., 1890, (Evans).

*Paratype*— ♀, Sudbury, Ont., Aug. 18, 1889, (Evans).

### **Cyrtopogon lineotarsus** n. sp.

Very similar to *leptotarsus* but the scutellum is more flattened and bears stouter apical hairs.

Length, 11 mm. *Male*. Face strongly gibbose, more prominent above, the swelling reaching to the base of the antennae; the side of the swelling "ridged"; grey pollinose; mystax black, its sides white. Front slightly convex, not or scarcely sunken, thinly greyish pollinose; black pilose. Occiput grey pollinose, wholly black pilose along the eyes, whitish behind. Antennae black, the first two joints with greyish bloom, first twice as long as second, second as broad as long, both black-haired; third equal to first two combined, widest beyond middle; style half as long as third joint, not slender, tapering.

Thorax shining black; evidently pollinose as in *leptotarsus*, the pleura grey pollinose, mesopleura more shining. Pile black, rather fine, not long; no bristles. Pleura whitish pilose, the mesopleura alone chiefly black haired. Scutellum flat, grey pollinose, white pilose, the hair fine, rather long, stout and with an apical fringe of stouter hairs.

Legs black, tarsi reddish or piceous; femora whitish pilose, but with black hair intermixed and all black apically; tibiae rather densely black haired; bristles fine, black; front tibiae with two long apical bristles reaching almost to the apex of second tarsal joint, otherwise with only two or three short bristles Front tarsi reddish, the fifth joint longer than the three preceding combined, blackish, slightly convex, black haired on apical half, wholly remarkably flattened. On the anterior upper margin of the first four joints of the fore tarsi a row of long black bristles. Front tibiae slightly arcuate.

Wings limpid hyaline. Halteres yellow.

Abdomen shining black, each segment grey pollinose on the posterior margin, including the first. Pile black on the dorsum and genitalia, whitish and longer on the sides.

*Holotype*— ♂, Banff, Alta., August 3, 1908, (N. B. Sanson), No. 570, in the Canadian National Collection, Ottawa.

Readily distinguished from *leptotarsus* by the pile on the last joint of the front tarsus, narrower black pilose facial stripe; more flattened, pollinose scutellum, apical bristly hairs, etc.

**Cyrtopogon predator** new species

Face black pilose in the middle, white on the sides; scutellum flat, grey pollinose; without stronger bristles apically.

Length, 18 mm. *Female*. Face strongly gibbose, most prominent above, the sides of the swelling "ridged," black pilose in the middle, the sides broadly white pilose so that it leaves a conspicuous median band; ground color obscured by greyish white pollen. Front shining black, a little depressed, black pilose. Occiput grey pollinose, shining just below the vertex; narrowly black pilose along the eyes, elsewhere, white. Antennae black, thinly grey pollinose; third joint missing; first joint twice as long as second, second as broad as long.

Thorax grey pollinose, the mesonotum shining; a slender median yellowish stripe on the anterior half of the middle line; on either side with an elongate greyish yellow spot on the middle; humeri and inside them, greyish yellow; separated from them by a black stripe is a transverse greyish yellow stripe, which curves back on reaching the sides and runs to behind the root of the wings, the postalar calli also greyish. The transverse band is broadly interrupted in the middle. Pile on dorsum black, not abundant nor strong. Humeri, postalar calli and pleura, white pilose; mesopleura entirely black pilose. Scutellum flat, grey pollinose; fine white pilose, without strong apical hairs.

Legs shining black, the knees narrowly dark reddish; hind tibiae chestnut brown. Pile on femora long, fine, white; on their apices and elsewhere on the legs black. Bristles black. Inside of front tibiae and inner apices of the hind ones, yellow pubescent. Tarsal joints black, their apices red. Bristles strong, black. Front tibiae with two long apical spines which reach almost to the apex of the basitarsi.

Wings limpid hyaline. Halteres yellow.

Abdomen shining black; first to fifth segments grey pollinose posteriorly, with no indication of interruption. Pile white, fine, not abundant; black, short, on the disc. Last two segments with narrow reddish apices.

*Holotype*— ♀, Fort Fraser, B. C., August 15, 1919, (W. B. Anderson), No. 571, in the Canadian National Collection.

This differs from *lineotarsus* by the wholly fine hair on the thorax, etc. From ♀ *leptotarsus* it differs in the darker legs, narrow black pilose facial stripe, absence of pollen on the sixth segment, etc.

CATALOGUE OF DESCRIBED NORTH AMERICAN SPECIES.

This catalogue lists all the described species from north of Mexico. It omits any references which merely record localities, including only such as are of value in relation to the identification of the species in question. All the species described previously to 1909 are included in Back's paper. The new species described in the present paper are omitted from the catalogue.

**Comantella** Curran.

*cristata* Coq., Can. Ent., XXV, 33, 1893, (Blacodes); Back, Trans. Am. Ent. Soc.,

XXXV 377, 1909, (Cophura).

*? cyrtopogona* Cole, Proc. Calif. Acad. Sci., IX, 236, 1919, (Cophura).—Ore.

*maculosa* Coq., Proc. Ent. Soc. Wash., VI, 184, 1904, (Cyrtopogon maculosis); Back, Trans. Am. Ent. Soc. XXXV, 283, (id.); Back, Trans. Am. Ent. Soc., XXXV, 378, (Cophura fallei)—Wash., Colo., Calif., Ore., B. C.

## **Eucyrtopogon** Curran.

*nebulo* O. S., West. Dipt., 309, 1877; Willist., Trans. Am. Ent. Soc., XI, 14, 1884; Back, Trans. Am. Ent. Soc., XXXV, 294, 1909—Calif., Wash., Ore., B. C.

*varipennis* Coq., Proc. Ent. Soc. Washington, VI, 184, 1904; Back, Trans. Am. Ent. Soc., XXXV, 295, 1909; —Washingon, Ore., B. C.

## **Cyrtopogon** Loew.

*albitarsis* Curran, Can. Ent., LIV, 278, 1923.—Alta.

*alleni* Back, Trans. Am. Ent. Soc., XXXV, 261, 1909.—N. H.

*anomalus* Cole, Proc., Calif. Acad. Sci., IX, 231, 1919.—Ore.

*auratus* Cole, (id. 230), 1919.—Ore.

*aurifex* O. S., West. Dipt., 301, 1877; Back, (l. c., 272), 1909.—Calif.

*bimaculata* Walk., Dipt. Saund., 102, 1851; Loew, Berl. Ent. Zeit., 365, 1874; Loew, Cent. VII, 61, 1866; (*Dasypogon melanopleuris*); (Back, l. c., 262) —N. H., N. M., Minn., Man., Alta.

*callidpedilus* Loew, Berlin Ent. Zeit., 358, 1874; Back, (l. c. 268), 1909.

*cerussatus* O. S., West. Dipt., 308, 1877; Back, (l. c., 291), 1909.—Calif.

*cretaceous* O. S., West. Dipt., 302, 1877; Back, (l. c., 287), 1909.—Calif.

*cymbalista* O. S., West. Dipt., 297, 1877; Back, (l. c., 269), 1909.—Calif.

*dasyllis* Willist., Kans. Univ. Quart., II, 66, 1893; Back, (l. c., 277).—Colo., B. C.

*dasylloides* Willist., Tr. Am. Ent. Soc., XI, II, 1884; Back, (l. c., 283), 1909—Ore.

*dubius* Willist., Tr. Am. Ent. Soc., XI, 13, 1884; Back, (l. c., 288), 1909.—Calif.

*falto* Walker, List I, 355, 1849, (*Dasypogon*); Loew, Cent. VII, 55, 1866, (*chrysopogon*); Back, (l. c., 263), 1909.—N. S., N. B., Que., Mass., N. Y., N. J., Fla., Ill., Man., Ont.

*? gibber* Willist., Tr. Am. Ent. Soc., XI, 14, 1884; Big. (*? Holopogon appendiculatum*), Annales, 1878, 483. (Syn. by Back.)

*infuscatus* Cole, Proc. Calif. Acad. Sci., IX, 233, 1919.—Ore.

*leucozonus* Loew, Berl. Ent. Zeit., 1874, 364; O. S. West. Dipt., 299, 1877; Back, (l. c. 282), 1909.—Calif., N. M., B. C.

*longimanus* Loew, Berl. Ent. Zeit., 1874, 360; O. S., West. Dipt., 303, 1877; Back, (l. c. 278), 1909.—Calif., B. C.

*lutatius* Walker, List II, 357, 1849; Back, (l. c. 265), 1909.—N. S., Mass., Ont., Pa., N. Y.

*lyratus* O. S., Cat., 232, 1878; Back, (l. c. 265).—N. H., N. Y.

*marginalis* Loew, Cent. VII, 60, 1866; Back, (l. c. 267).—Canada, N. H., Mass., Conn., N. Y., N. J., Va.

*montanus* Loew, Berl. Ent. Zeit., 362, 1874; O. S., West. Dipt., 298, 1877; Back, (l. c. 280).—Colo., N. M., B. C., Alta.

*nigricolor* Coq., Poc. Ent. Soc. Wash., VI, 183, 1904.—Calif.

*nugator* O. S., West. Dipt., 307, 1877; Back, (l. c. 289).—Calif., Ore., B. C.

*perspicax* Cole, Proc. Calif. Acad. Sci., IX, 233.—Ore.

*plausor* O. S., West. Dipt., 307, 1877; Back, (l. c. 270).—N. M., Colo., Nebr., Utah, Idaho. Mont.

*positivus* O. S., West. Dipt., 307, 1877; (Back, l. c. 290).—Calif., Idaho., N. M., Ariz.

*praepes* Willist., Trans. Am. Ent. Soc., XI, 12, 1884; (Back, l. c. 271).—Wash., Idaho, Calif., Colo. (I have seen specimens from these localities.)

*princeps* O. S., West Dipt., 302, 1877; Back, (l. c. 273); Cole, Proc. Calif. Acad. Sci., IX, 234, 1919.—Calif., Ore.

*profusus* O. S., West. Dipt., 305, 1877; Back, (l. c. 286).—Calif.

*pulcher* Back, Trans. Am. Ent. Soc., XXXV, 274, 1909.—Colo.

*rattus* O. S., West. Dipt., 308, 1877; Back, (l. c. 285).—Ariz.

*rejectus* O. S., West. Dipt., 307, 1877; Back, (l. c. 289).—Calif.

*rufotarsus* Back, Trans. Am. Ent. Soc., XXXV, 275, 1909.—Montana.

*sudator* O. S., West. Dipt., 307, 1877; Back, (l. c. 291).—Calif.

*willistoni* Curran, Can. Ent., LIV, 277, 1923, (Williston, Trans. Am. Ent. Soc., XI, 12 (sp.).—Wash., B. C., Alta., Colo., Ore.

## UNDESCRIBED CANADIAN DOLICHOPODIDAE, WITH KEY TO CHRYSOTIMUS (DIPTERA)*

BY C. HOWARD CURRAN,
Ottawa, Ont.

### **Chrysotimus luteopalpus** new species

Allied to *flavicornis* Van Duzee, but differs in the palpi being yellow, face of ♂ rather purplish in ground color; thorax nor front not bronzed. It differs from the specimen described as ♂ *pusio* Loew in having black palpi. The abdomen of both sexes is practically without pollen.

Length between 1.5 and 2 mm. *Male.* Face and front blue, rather thickly white pollinose, but not entirely concealing the ground color so that it appears somewhat purplish; ocellar triangle blue. Palpi yellow; proboscis brown Occiput more green, with thin whitish pollen. Ciliae of head pale yellow. Antennae yellow; third joint fuscous, subtriangular, the arista sub-basal, arising from a blackish dot; hair of third joint very conspicuous.

Thorax with the dorsum rather brassy green, moderately whitish pruinose, the pre-scutellar depression and scutellum slightly bluish tinged; pleura blue moderately white pruinose. Hairs wholly yellow.

Legs, including all the coxae, yellow, the last tarsal joint fuscous. Middle and hind femora each with one pre-apical bristle; their tibiae each with two bristles on the outer side in addition to the apical ones.

Wings scarcely yellowish, except basally. Crossvein slightly beyond the middle of the fifth vein and very slightly oblique.

Abdomen shining blue green, the base green; venter probably yellowish. Scarcely a trace of pollen. Hypopygium brownish, rather large for this genus, in the type, free, but apparently normally partly concealed.

*Female.* Face and front green sometimes with a bluish tinge; the occiput appears bluish in one specimen. Pleura green. Tarsi scarcely darker apically.

Abdomen wholly luteous, not pollinose, with a conspicuous fine yellowish hair laterally and apically. Squamae yellow with yellowish fringe, halteres yellow in both sexes.

*—Contribution from the Division of Systematic Entomology, Entomological Branch, Dept. of Agric., Ottawa.

*Holotype*— ♂, Aweme, Manitoba, July 18, 1916, (N. Criddle); No. 552, in the Canadian National Collection.

*Allotype*— ♀, same data.

*Paratypes*— ♀ and 2 ♂, same data.

The species recorded from north of Mexico may be distinguished by the following table:

1. Basal two antennal segments yellow ..... 3.
   Antennae all black or brown ..... 2.
2. Palpi yellow ..... *delicatus* Loew.
   Palpi black or brown ..... *pusio* Loew.
3. Palpi yellow ..... *luteopalpus* n. sp.
   Palpi blackish ..... 4.
4. Thorax pale green with bright coppery reflections; pleura black ..... *flavicornis* Van Duzee.
   Thorax vivid green; pleura green ..... *pusio* (Lw.) Wheeler.

## **Dolichopus robertsoni** n. sp.

Allied to *amnicola* but readily distinguished by the wholly yellow femora.

Length, 5 mm. *Male*. Face moderately wide, slightly narrowed in the middle; pale shining yellowish, becoming silvery white below. Front green, partly brassy, not noticeably pollinose; with a small bluish swelling at posterior angles of eyes. Infra-orbital ciliae yellowish, about ten of the upper pale. Antennae with the first two joints yellow with a black dorsal margin; third black, subcordate, less rounded below, its apex moderately acute; arista rising about the middle of the joint, plain.

Thorax bright green, conspicuously greyish yellow pollinose, leaving the middle stripe more shining in some lights; with a narrow stripe on either side of the middle line and a sublateral stripe on the median portion more or less cupreous. Pleura with greyish white pollen; chiefly of a more blue green tint.

Coxae all greenish black with narrow yellow apices, the front ones more shining greenish; all greyish white pollinose and with black hairs. Legs yellow; tip of hind tibiae and their tarsi wholly; front tarsi with the tip of their basitarsi and following joints wholly, and middle tarsi with the tip of the second, tip of third and last two joints entirely, black. Hind femora with row of conspicuous black bristly hairs on upper anterior surface, with two preapical bristles, the middle femora with one. Tarsi plain, the middle ones slightly compressed but lacking any ornamentation.

Wings apparently as in *amnicola*, but they have been wet. Squamae yellow, with black cilia. Halteres yellow.

Abdomen bright green, the disc more or less bronzed, thinly whitish pollinose, more noticeably so laterally. Hypopygium green, its broad upper margin and apex black. Lamellae of moderate size, obtusely oval, white, with narrow yellow margin on basal half, black margin apically, its margin regular, with six or seven projections, the apical ones long.

*Holotype*— ♂ Baldur, Manitoba, July 29, 1922, (H. A. Robertson), No. 582, in the Canadian National Collection.

This is perhaps only a variety of *amnicola* but the legs are much more extensively yellow, cilia of hind femora longer and middle tarsi more compressed.

**Parasyntormon emarginicornis** n. sp.

Third antennal joint sub-rectangular, shallowly emarginate apically so that both the upper and lower corners are pointed; infra-orbital ciliae pale; ciliae of squamae black; second and third abdominal segments broadly yellow. Legs chiefly yellow; middle coxae with broad black stripe on outer side.

Length 4 mm. *Male*. Slender. Face very narrow, gradually widened upwardly, eyes shallowly emarginate opposite the antennae, the front widened behind. Face yellowish brown, greyish white on lower third. Front rather dull brownish green. moderately greyish pollinose, above with brownish pollen; upper ciliae black; ciliae pale yellowish on lower three-fourths. Antennae black, first two joints narrowly yellow below; first joint two and one-quarter times as long as wide, gradually widened to apex; second joint nearly twice as long as wide. Third joint nearly twice as long as wide, its basal corners rounded, its apical corners sharply rounded, prominent, its apex rather conspicuously concave; joint a little wider basally. Arista sub-basal, first joint about four times as long as wide, tapering, its base again narrowed. Palpi obscure yellow, with silvery white pollen, not large.

Thorax shining green; mesonotum rather dull brownish, with the side margins and four equal stripes more shining dull green, the median stripes abbreviated behind, the lateral ones in front. Bristles and hairs black. Pleura white pollinose; with two bristles on propleura just above the front coxae.

Legs yellowish; tarsi brown, the basitarsi yellow except their apices. Coxae yellow, the middle ones greenish exteriorly; all clothed with black hairs, the front ones with some fine white hairs inwardly; middle and hind coxae with a black exterior bristle near the middle. Legs black haired; the front femora with a row of long sparse, fine bristles below anteriorly and a row on the basal half posteriorly, posterior four each with a preapical bristle on front surface. Tibiae with a spine on outer basal fourth; the middle and hind ones with one on anterior surface at about the basal fourth and another beyond the middle and the hind tibiae bear a more or less distinct row of bristles on outer posterior line. Legs simple; first joint of hind tarsi four-fifths as long as second.

Wings greyish hyaline; costa simple; last section of fourth vein curved forward from basal third, apically parallel with third vein; anal cell rectangular; allulae not differentiated (rudimentary); posterior base of wing with fine whitish hairs. Squamae yellow, with black ciliae. Halteres yellow, stem whitish.

Abdomen bronzed; the base of the segments blackish; first segment more greenish; second and third segments with a large, basal yellow triangle on each side, their inner ends rounded, reaching narrowly to the apex of the segment at the sides. Hair all black. Genitalia small; lamellae short, slender; claspers triangular, shining black. Hair on lamellae black.

*Holotype*— ♂, Banff, Alta., July 26, 1922, (C. B. D. Garrett), No. 580, in the Canadian National Collection.

This species is allied to *occidentale* Aldrich and I had identified it as that species in the absence of typical specimens. Dr. Aldrich pronounced it as undescribed when we compared specimens. It differs from that species by having the second antennal joint narrower and less acute and in more conspicuous points at apex of third joint, etc.

# THE BEE-GENUS DIALICTUS

BY GRACE SANDHOUSE,
University of Colorado, Boulder, Colo.

There has been some question regarding the metallic-colored Halictine bees with two submarginal cells,—whether they should be classed as a separate genus *Dialictus,* or considered as derivative forms from different types of *Chloralictus,* the supposed genus therefore polyphyletic. Unfortunately, these bees have never been collected in quantities sufficient to permit an extensive investigation into their anatomical structure; and, until such an investigation has been made and the results thus obtained considered, it seems rather useless to depart from the nomenclature now in use.

The fact that sometimes a specimen may have two submarginal cells on one side and three on the other indicates the instability of the supposed generic character. In a discussion of *Chloralictus parvus* (Cresson), Baker stated that in his collection from all Cuba all the males and three-fourths of the females had but two submarginals. He also noted that sometimes the number of submarginals varied in the different wings of one specimen. In the present collection the writer found this to be true in one male *D. occidentalis* Crawford. Cresson evidently had similar specimens, for he described *D. parvus* as *Augochloral parva*—with three submarginals—and as *Panurgus? parvus*—with two. Should further investigation support the view that the group is polyphyletic, the genus *Dialictus* would then have to be abandoned and the species referred to *Halictus* or *Chloralictus.*

The following key includes all the known North American species of Dialictus except two from the West Indies—*D. parvus* (Cr.) and *D. subcyaneus* (Ashmead). The key was compiled from direct observation of specimens except in the case of *halictoides* Fox and *costaricensis* Crawford.

DIALICTUS

Males ..... 1.
Females ..... 4.

1. Tegulae punctured (New Mexico) ..... *stictaspis* n. sp.
   Tegulae not punctured ..... 2.
2. Slender species; mesothorax almost without punctures (Colorado) ..... *lionotus* n. sp.
   More robust; mesothorax closely punctured ..... 3.
3. Flagellum dark, comparatively short; abdomen not punctured (Colorado) ..... *anomalus* Robertson.
   Flagellum longer, yellow testaceous beneath; abdomen punctured (New Mexico) ..... *occidentalis* Crawford.
4. Abdomen testaceous (Lower California) ..... *halictoides* Fox.
   Abdomen not testaceous ..... 5.
5. Tegulae punctured (San Jose, Costa Rica) ..... *costaricensis* Crawford.
   Tegulae not punctured ..... 6.
6. Wings clear; head and thorax brilliant blue; abdomen punctured (Colorado and New Mexico) ..... *occidentalis* Crawford.
   Wings dusky; head and thorax darker; abdomen not punctured ..... 7.
7. Abdomen greenish; mesothorax dull and closely punctured (Guatemala) ..... *onustulus* Cockerell.

Abdomen black; mesothorax somewhat shining and less closely punctured ..... 8.

8. Slender species; head narrow; mesothorax dark blue; disk of propodeum finely granular (New Mexico) ..... *theodori* Crawford.

Robust species; head broad; mesothorax brassy green; disk of propodeum plicate (Colorado) ..... *anomalus* Robertson.

The following is a list of the species included in the genus *Dialictus*. The localities cited are additional to those previously listed.

### Dialictus occidentalis Crawford

*Dialictus occidentalis* Crawford. Can. Ent., 1902, p. 318.
*Halictus galei* Cockerell. Can. Ent., 1919, p. 272.

The writer examined the type specimen of *H. galei* and it was found to agree with named specimens of *occidentalis*. Furthermore, Mr. Rohwer of the U. S. National Museum kindly compared the description of *galei* with the type of *D. occidentalis* and found no difference.

COLORADO: 10 ♀s, Boulder, April 8 to May 24, at flowers of *Taraxacum taraxacum, Salix, Drymocallis, Linum lewisii;* ♀ Manitou, at *Ribes leptanthum* (T. and W. Cockerell); ♀, Gold Hill, July 12, '19 (T. and W. Cockerell).

NEW MEXICO: 2 ♀s, Santa Fe, Aug. (Cockerell, Nos. 4110 and 4231) ♀, Las Vegas, July 29, at *Verbesina exauriculata* (Cockerell); ♀, East Las Vegas, April 24, '02, at *Taraxacum* (Eldon Tuttle and Leo Tipton); ♀, Hot Springs, May 17, '03, at *Taraxacum* (Cockerell); ♂, Santa Fe, Sept. 2, Cockerell, No. 5610; 5 ♂s Pecos, July, at *Clematis ligusticifolia* (T. W. Cockerell).

### Dialictus theodori Crawford

*Dialictus theodori* Crawford. Can. Ent., 1902, p. 318.

1 ♀, Pecos, New Mexico, July 9, (W. P. Cockerell).

### Dialictus costaricensis Crawford

*Dialictus costaricensis* Crawford. Trans. Am. Ent. Soc. XXXIII. 1906, p. 163.

### Dialictus halictoides (Fox)

*Panurgus halictoides* Fox. Proc. Calif. Academy of Science 2d. Ser., Vol. IV., 1893, pp. 15 and 113.

### Dialictus subcyaneus (Ashmead)

*Dufourea subcyanea* Ashmead. Trans. Ent. Soc. London, 1900, p. 215.

### Dialictus onustulus Cockerell

*Dialictus onustulus* Cockerell. Annals and Magazine of Natural History, Ser. 8, Vol. X., 1912, p. 318.

2 ♀'s, Guatemala City, Guatemala (W. P. Cockerell).

### Dialictus anomalus (Robertson)

*Halictus anomalus* Robertson. Am. Nat. Vol. XXVI., 1892, p. 272.

COLORADO: 13 ♀'s, Boulder, April 29 to Aug. 9, and 1 ♂, Aug. 1 at flowers of *Besseya plantaginea, Monarda, Phacelia, Solidago,* (W. P. Cockerell and S. A. Rohwer).

### Dialictus parvus Cresson

*Augochlora parva* (Poey MSS.) Cresson. Proc. Ent. Soc. Phila. 1865, p. 171.
*Panurgus? parvus* Cresson. Proc. Ent. Soc. Phila. 1865, p. 175.
*Chloralictus parvus* (Poey) Baker. Primer Informe Annal de la Estacion Central Agronomica de Cuba, 1906, p. 259.

### Dialictus lionotus sp. nov.

*Male*—About 4 mm. long; head and thorax shining, very dark blue-black;

facial quadrangle almost as broad as long; orbits converging slightly below; eyes comparatively short; face smooth, shining, with piliferous punctures only; supraclypeal area and clypeus black; a distinct groove down the middle of the front, below the ocelli; antennae comparatively long; flagellum dark testaceous, yellow testaceous beneath; mesothorax and scutellum smooth, almost without punctures; disk of propodeum without a distinct enclosure, microscopically tessellate between the plicae; mesopleura with few shallow punctures; metapleura with irregular transverse ridges; truncation poorly defined laterally; tegulae very pale, impunctate; thorax and abdomen with very sparse white pubescence; abdomen black, polished, narrowly ovate, impunctate, apical margins of segments testaceous; wings dusky; anterior wing 3 mm. long; stigma and nervures dull testaceous; basal nervure strongly bent; second submarginal cell of the left wing of the type specimen receiving the first recurrent nervure near the base and the second near the apex, in the right wing the second submarginal receives the first recurrent nervure about one-fourth of the distance from the base and the second as in the left wing; legs black, knees, apices of tibiae and the tarsi light ferruginous.

*Habitat*: Colorado, (Baker, No. 1596).

Known from the type specimen only. The antennae were accidentally broken after the description had been written. It is easily distinguished from all other *Dialictus* and *Halictus* by the lack of punctation, the short eyes, and the very gentle truncation.

**Dialictus stictaspis** sp. nov.

*Male*—About 5 mm. long; pubescence white; head and thorax brilliant steel blue; facial quadrangle somewhat longer than broad; orbits converging sharply below; antennae brown, the flagellum ferruginous beneath; face clothed with dense pubescence; front above the antennae closely punctured, the punctures becoming more sparse below; thorax with moderately dense pubescence; mesothorax polished, coarsely punctured, the distance between punctures about twice the diameter of a puncture; punctation of the scutellum similar to that of the mesothorax; disk of propodeum crescentic, microscopically lineolate between the rugae which reach the apex; mesopleura coarsely and closely punctured; metapleura with irregular shallow punctures; sides and posterior part of propodeum punctured; truncation poorly defined laterally; tegulae dark, punctured; abdomen subcylindrical, dark brown, apical margins of the segments polished testaceous, the remainder of the segments with delicate piliferous punctures; wings hyaline; stigma and nervures testaceous; second submarginal cell receiving the first recurrent nervure about one-third of the distance from the base, and the second about one-fifth from the apex; anterior wing 3.5 mm. long; the second submarginal cell about as large as the first; legs dark brown, with rather sparse pubescence; tarsi slightly paler.

*Habitat*: Mesilla, New Mexico, June, (Cockerell).

The bees here considered, except where otherwise stated, are all in the collection of Professor T. D. A. Cockerell and the types will eventually be placed in the U. S. National Museum. The writer is greatly indebted to Professor Cockerell for the use of his material and literature, as well as for helpful criticisms and suggestions.

# ADDITIONS TO THE LIST OF THE COLEOPTERA OF NORTHERN ALBERTA

BY F. S. CARR,
Medicine Hat, Alta.

CICINDELIDAE

526. *Cicindela edmontonensis* Carr. 9-V-18.

CARABIDAE

527. *Loricera caerulescens* Linn. 12-V-19.
528. *Dyschirius erythrocerus* Lec. 30-VII-21.
529. *Bembidion dentellum* Thunb. 7-V-17.
530. *Bembidion transversale* Dej. 4-X-20.
531. *Rembus undulata* Carr. 27-IV-18.
532. *Platynus corvus* Lec. 9-V-19.
533. *Platynus gemellus* Lec. 3-VI-18.
534. *Lebia pulchella* Dej. 21-IV-19.

HALIPLIDAE

535. *Peltodytes tortulosus* Roberts. Redwater 20-VI-22.

DYTISCIDAE

536. *Coelambus patruelis* Lec. 9-IV-16.
537. *Coelambus sellatus* Lec. Tofield, 25-VIII-22.
538. *Coelambus unguicularis* Cr. Tofield. 25-VIII-22.
539. *Coelambus canadensis* Fall. 13-VI-17.
540. *Coelambus puncti-lineatus* Fall. Tofield, 25-VIII-22.
541. *Coelambus oregonus* Fall. 10-VII-17.
542. *Deronectes depressus* Fabr. 29-VIII-19.
543. *Hydroporus consimilis* Lec. Castor, 9-X-20.
544. *Hydroporus sericeus* Lec. Castor, 9-X-20.

GYRINIDAE

545. *Gyrinus opaccus* Sahl. 10-V-20.
546. *Gyrinus picipes* Aube. Jasper, 13-IX-22.

HYDROPHILIDAE

547 *Helophorus oblongus* Lec. 6-V-22.

STAPHYLINIDAE

548. *Tachinus memnonius* Grav. 29-VIII-19.
549. *Boletobius cincticollis* Say. 27-VII-19

PSELAPHIDAE

550. *Euconnus similis* Blatch. 28-VI-19.

HISTERIDAE

551. *Saprinus lugens* Er. 28-VI-20.

LYCIDAE

552. *Calochromus perfacetus Say.* Edwand, 20-VI-22.

LAMPYRIDAE

553. *Phausis riversi* Lec. 24-VI-20 (Det. by Mr. Barber).

CLERIDAE

554. *Hydnocera lecontei* Wolcott. Redwater 30-VI-22, on jackpine.

MORDELLIDAE

555. *Mordellestina pustulata* Melsh. 17-VI-20.

MELOIDAE

556. *Epicauta cinerea* Forst. Fort Saskatchewan, 10-VI-22.
557. *Macrobasis subglabra* Fall.

BUPRESTIDAE

558. *Buprestis sulcicollis* Lec. Edwand, 14-VI-22. On jackpine.

HELMIDAE

559. *Helmis vittata* Melsh. 23-VII-21.

HETEROCERIDAE

560. *Heterocerus tristis* Mann. 7-VIII-22.

OSTOMIDAE

561. *Tenebroides dubia* Melsh. Castor, 11-IX-20.

COCCINELLIDAE

562. *Hippodamia sinuata* Mulst. 8-VIII-19.
563. *Hippodamia convergens* Guer. 14-VI-19.
564. *Brachyacantha uteela* Casey. 5-IX-21.
565. *Brachyacantha illustris* Casey. 13-V-22.
566. *Scymnus naviculatus* Casey. 18-VI-19.

ANOBIIDAE

567. *Sitodrepa panicea* Linn. 13-III-20. In onion seed.

CERAMBYCIDAE

568. *Anthophilax mirificus* Bland. Hillcrest, 19-VI-20.
569. *Judolia sexmaculata* L. 26-VI-18.
570. *Brachyleptura cribripennis* Lec. 27-VII-22.
571. *Leptura nigrella* Say. Edwand, 14-VI-22. On jackpine.
572. *Monochamus oregonensis* Lec. Jasper, 13-IX-22. Ovipositing on *Pinus contorta*.
573. *Leiopus variegatus* Hald. 18-VII-21.

CHRYSOMELIDAE

574. *Donacia magnifica* Lec. 12-VII-22. On arrowhead.
575. *Donacia distincta* Lec. 18-VI-18.
576. *Lema brunnicollis* Lec. 29-VII-18.
577. *Galerucella tuberculata* Say. 29-VII-22.
578. *Disonycha xanthomelaena* Darm. Mundare, 10-VI-22.
579. *Chaetocnema perturbata* Horn. 13-VII-22.
580. *Chaetocnema protensa* Lec. 10-IX-19.
581. *Phyllotrete albionica* Lec. 5-VIII-22.

MYLLABRIDAE

582. *Mylabris fraterculus* Horn. 3-VII-19.

CURCULIONIDAE

583. *Hyperodes humilis* Gyll. 6-VI-18.
584. *Dorytomus parvicollis* Casey. 9-VII-15.
585. *Dorytomus vagenotatus* Casey. IV-21. On poplar trunks.
586. *Elleschus scanicus* Payk. 10-IV-15. In willow flowers.
587. *Elleschus borealis* Carr. 24-V-19. In willow flowers.
588. *Phthorophloeus piceae* Swaine. 2-IX-16.

It is to be noted that, unless otherwise indicated, the locality of capture is Edmonton, Alberta.

## NOTES ON THE AUTHORSHIP OF CERTAIN NAMES (LEPID.: PHALAENIDAE)

BY WM. BARNES and F. H. BENJAMIN,
Decatur, Ill.

Strecker, 1874, Lep. Rhop. & Het., p. 94, states: "Dr. Herman Behr lately had the kindness to send me the types of his following unpublished Californian species:"; then follow short descriptions of *"Dryobota Californica,* Behr, Mss.," *"Taeniocampa Paviae,* Behr, Mss.," *"Cosmia Sambuci,* Behr, Mss.," *"Cucullia Solidaginis* Behr, Mss.," *"Cucullia Matricariae,* Behr, Mss.," and *"Plusia Echinocystidis,* Behr, Mss."

Under the present International Rules of Zoological Nomenclature, these names will apparently have to be credited to Strecker, as the descriptions are obviously by the author and not by Dr. Behr. This is a parallel case to the name *"Plusia lenzi,"* now generally credited to French and which was described as a Behr manuscript species.

The original orthography of *matricariae* and *echinocystidis* should be preserved. It may be of interest to note that Dr. Behr apparently distributed specimens of the last mentioned labelled *echinocystis,* which accounts for that name in the literature; while Strecker, 1900, Lep. Rhop. & Het., Suppl. 3, p. 33, spells the name *echinocystides.*

## EXTENDED PUPAL DURATION

Mr. R. R. Rowley of Louisiana, Mo., writes that in May, 1915, he received from southern Texas two dozen cocoons of *Rothschildia jorulla,* collected in the autumn and winter preceding (1914). From these cocoons he obtained fourteen moths, nine males and five females. The first moth emerged October 4th, 1915; the second, October 9th, 1916; the third, October 10th, 1916; the fourth, October 16th, 1916; the fifth, July 9th, 1917; the sixth, September 20th, 1917; the seventh, April 25th, 1918; the eighth, May 2nd, 1918; the ninth, August 12th, 1918.

Of the thirteen remaining cocoons some had died, some had given parasitic hymenoptera, but three were still heavy and promising. However, as he hardly expected to get anything further from the cocoons, he gave the above information to the Editor of "The Canadian Entomologist" and it was published in that Journal November, 1918.

To his surprise, a twelfth moth emerged May 14th, 1919, but that was not the end, as the thirteenth crawled out of its cocoon on June 30th, 1919 The last cocoon was still heavy, but did not give up its occupant till July 9th, 1922, after a prison term of eight years. The first moth (October 14th, 1915) was a small male; the last (July 9th, 1922) was a medium sized female.

## CHANGE OF NAME

The name *"Chilosia similis"* having been used by Michl. (Ver. Zool.-Bot., Ges. Wien, 1911) for a European species, I propose the name *"Cartosyrphus shannoni"* for the species described by Shannon (Proc. Biol. Soc. Wash., XXIX, 196, 1916). Notwithstanding the fact that the latter is now placed in the genus *Cartosyrphus,* while the former is a true *Chilosia,* this change is necessary.

C. H. CURRAN.